INTRODUCTION

U.S. Environmental Protection Agency (EPA), Region 5, the lead Agency, in consultation with the Ohio Environmental Protection Agency (Ohio EPA) is issuing a ***Proposed Plan***[1] for the Chemical Recovery Systems, Inc., ("CRS-Site") located in Elyria, Ohio. For details on previous investigations, including other pertinent documents, consult the ***Administrative Record*** in the ***Information Repository***.

EPA is issuing a Proposed Plan for the ***Record of Decision ("ROD")***. The ***Proposed Plan*** summarizes the information found in detail in a report called the ***Remedial Investigation Feasibility Study (RI/FS),*** which includes the CRS-Site's Risk Assessment. This Proposed Plan identifies EPA's preferred alternative for the CRS-Sites' remediation, and the rationale for choosing the preferred alternative, as well as the other remediation alternatives. For those members of the public who wish to evaluate this proposal, EPA has placed the detailed supporting documents in the local Information Repository at the Elyria Public Library located at 320 Washington Avenue, Elyria, Ohio, (440) 325.5747. EPA encourages any member of the public to review those documents for further information. The file in the repository has been created to make the review of the Proposed Plan easier. It includes evaluations of the CRS-Site's cover systems technology; and analysis of ***ground water***, soil, sediment, and surface water data collected. The repository also contains the approved *RI/FS Report*, (Revision 3, August 2006), as well as earlier investigative reports. In addition to the local repository, CRS-Site documents are also available for review at EPA's Regional Office located at 77 W. Jackson Blvd., Chicago, Illinois.

Your input on the proposed remediation plan and supporting information is valuable for the selection of a final remedy. EPA encourages the public to participate in this remedy selection process by reviewing and commenting on the remediation plan presented is this Proposed Plan. The Proposed Plan is required by Section 117(a) of the ***Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA") of 1980,*** as amended by ***Superfund Amendments and Reauthorization Acts ("SARA") 1986,*** and by the ***National Contingency Plan (NCP)*** Section 300.430(f)(2). Before a final decision is made, EPA will hold a public meeting and a comment period (30-days) to accept comments from residents and other interested parties. As a result of any new information or comments received, EPA may modify the proposed selected remedy in the ROD. Therefore, the public is encouraged to review and comment on this Proposed Plan. For more information regarding the Site and the Proposed Plan, see the associated documents available in the Information Repository.

The 30-day public comment period begins **Monday, July 16, 2007**, and extends through **Tuesday, August 14, 2007.**

PUBLIC MEETING

EPA will hold a public meeting to explain the Proposed Plan and all of the alternatives presented in the Feasibility Study. Oral and written comments will be accepted at the meeting. The meeting will be held on Thursday, July 26, 2007, 6:00 p.m. to 8:00 p.m. at the Elyria City Council Chambers, 2nd Floor, 131 Court Street, Elyria, Ohio.

SITE CHARACTERISTICS AND BACKGROUND

1 Words in ***bold italics*** are defined in the glossary section.

The CRS-Site is approximately 2.5 acres in size; and is located at 142 Locust Street, in a 200-year-old industrial/commercial area near the central business district of the city of Elyria, Lorain County, Ohio. The CRS-Site is on a peninsula formed by an ox-bow in the East Branch of the Black River ("River"). The CRS-Site is bordered by the River on the west side; by Engelhard Chemical Company (formerly Harshaw Chemicals) to the north; by Locust Street and Engelhard Chemical Company on the East; and by M&M Aluminum Siding to the south. In the southeast corner, two buildings remain on the property: (1) a combination warehouse/office building, and (2) a shell of the Rodney Hunt Still Building. In the northwest (NW) corner, two former structures remain; the foundation from the former Brighton Still Building, and a secondary containment dike from the former above ground storage tank (AST) farm. Two sumps remain; one is located in the shell of the Rodney Hunt Building. The second sump is located where the former Brighton Still Building stood. The CRS-Site is fenced on all sides except for the western River bank portion, which has a steep slope and is covered with heavy vegetation and concrete slabs. Four pipes (subsurface conduits) protrude from the River bank on the western boundary. In the NW portion of the CRS-Site, the primary subsurface conduit is a Storm Sewer outfall pipe, which runs from Locust Street underneath the CRS-Site and discharges to the River. A manhole on Locust Street provides access to the storm sewer, which drains surface run-off from Locust Street and Engelhard Chemical Company. Cars, trucks, wood, and other debris are located randomly on the property.

HISTORICAL SITE INVESTIGATIONS AND ENFORCEMENT

- **1965** - A Title Guaranty issued to Mrs. Dorothy Obitts confirms that Harshaw Chemical Company leased a portion of the site from Carl Swiers.

- **1960 - 1974** – Russell Obitts formed two chemical companies: Obitts Chemical Services and Obitts Chemical Company, which operated a solvent reclamation facility, and sold the reclaimed solvents to industries. Obitts Chemical Services obtained used, "dirty," or "spent" organic solvents from various companies. After distilling the "dirty" solvents, the "cleaned" reclaimed solvents were repackaged and sold. The solvents were transported to and from the site in 55-gallon drums or by tanker trucks.

- **January 1, 1974** - Chemical Recovery Systems, Inc. (CRS) assumed operation of the CRS-Site through a stock purchase agreement with the Obitts Chemical Company. CRS also leased the site property from Mrs. Obitts.

- **December 29, 1975** - CRS exercised an option to purchase the site with Mrs. Obitts holding the mortgage. Later, CRS defaulted on payment for the property, and Mrs. Obitts re-assumed uncontested ownership following legal action.

- **1974 - 1981** – CRS continued in the business of solvent reclamation and sales. The solvents continued to be stored in 55-gallon drums, AST, and tanker trucks.

- **August 1978 and 1980** – Ohio EPA's, Northeast District Office (NEDO) alleged that releases from the CRS-Site were affecting the River.

- **1980** - NEDO's concerns about the CRS-Site conditions and photographs taken by the local Fire Marshal led EPA to file a lawsuit against CRS requiring the facility owners to address environmental issues at the CRS-Site.

- **October 7, 1980** - EPA filed a complaint alleging violations of Sections 7003 of the RCRA and 301 (a) of the CWA. The two principal concerns cited in the complaint were the threat of fire and explosion posed by the presence of approximately 4,000 drums of chemical waste on the CRS-Site, and the presence of defective distillation units. The second complaint averred a leachate stream containing PCBs was running down the bank entering into the River.

- **1981** - In response to the lawsuit, CRS ceased receipt, storage, and processing of "spent" solvent. CRS removed all tanks, drums, and other solvent containers from the site, ceased operations and filed for bankruptcy prior to 1983.

- **August and September 1981** - A Hydrogeological and Extent of Contamination Study Report, was conducted by EPA contractors, Ecology & Environmental (E&E), Inc; (April 1982). During the investigation, four monitoring wells were installed, two up gradient, and two down gradient of the CRS-Site (ground water flow is from east to west toward the River). During this investigation, soil, ground water, surface water, and sediments samples were collected and analyzed.

  In summary, the report documented the media most impacted was soil and ground water with volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), semi-volatile organic compounds (SVOCs), and metals. The samples collected from the down gradient (toward the River) monitoring wells had high concentrations of VOCs and SVOCs. In all four monitoring wells, metals were detected above ***action levels***. The sediment and surface water samples detected VOCs, SVOCs, and metals. The greatest VOC concentrations were in samples collected down gradient of the storm sewer outfall in the NW corner of the CRS-Site. All samples collected detected SVOCs and metal concentrations above their respective action levels.

- **July 12, 1983** - A Consent Decree was issued by EPA for CRS to address what was then believed to be an imminent danger by performing the following five actions:

    1. Excavate all visibly contaminated soil identified during a joint inspection conducted by representatives of EPA and CRS.
    2. Excavate the perimeter of the Brighton Still building in the northwest corner of the CRS-Site to a depth of 1 foot and a distance of 2 feet beyond the perimeter of the foundation.
    3. Dispose of all removed soil at an EPA-approved disposal facility.
    4. Backfill the excavated areas with clean, clay containing fill.
    5. Gently grade the CRS-Site towards the River.

- **September 15, 1983** - EPA concluded that CRS was in compliance with the Consent Decree.

- **August 1996**, Ohio EPA conducted a Site Team Prioritization (STEP) Investigation on behalf of EPA.

- The 1996 STEP investigation detected contaminants in all environmental media. The five pathways evaluated during the STEP investigation were ground water, surface water, sediments, soil, and air.

- **September 29, 1997**, Ohio EPA completed the STEP Report, which included a pre-scoring for the ***National Priorities List (NPL).*** Currently, the CRS-Site is not listed on the NPL. CRS is, however, reportedly considered by EPA as NPL-equivalent, (now known as ***Superfund Alternative Sites (SAS))***, and may be proposed for inclusion on the NPL Section 105 of CERCLA, 42 U.S.C. § 9605.

- **July 2, 1999**, the Agency for Toxic Substances and Disease Registry (ATSDR) with the support of the City of Elyria Health Department completed a Health Consultation, which concluded that the CRS-Site currently poses no apparent health hazard to area residents. ATSDR and the Elyria Health Department also concluded that currently detected concentrations of chemicals in the surface soils at the CRS-Site pose a minimal health hazard to on-site workers.

- **October 31, 2001**, EPA issued General Notices of Potential Liability and information request under Section 104(e) of CERCLA, 42 U.S.C. § 9604(e)(2), to Respondents.

- **May 29, 2002** - EPA's Superfund Director signed Administrative Order on Consent with Respondents to perform an RI/FS.

- **September 30, 2003** - EPA's Superfund Director signed an Administrative Order on Consent with 83-***De Minimis Contributors.***

2003 REMEDIAL INVESTIGATION – RECENT SITE ACTIVITIES

A sampling plan was developed by the ***potentially responsible parties (PRPs)*** contractor Parsons, in consultation with EPA and Ohio EPA, to obtain recent CRS-Site information on the presence, extent, and magnitude of chemicals of concern (COC) in the soil, ground water, surface water and sediments. Based on the sampling plan, a CRS-Site ***remedial investigation (RI)*** was conducted from July 2003 through August 2005.

The first phase of the field investigation included the installation and sampling of 40 soil borings, which included temporary monitoring wells. The second phase of field activities was conducted during October and November 2003. These field activities included installing and sampling five new ground water monitoring wells, as well as the four existing monitoring wells. Soil borings were also collected along the storm sewer line, which runs under the CRS-Site, and discharges to the River. The third phase of field activities was conducted in April 2005. The purpose of this additional sampling was to address data gaps identified in the Phase I and Phase II field investigations. Soil samples were collected from the River bank to evaluate potential seepage from the bedrock.

SUMMARY OF THE 2003 ANALYTICAL RESULTS

Soil – Fifty soil samples were collected and analyzed for VOCs, SVOCs, PCBs, and metals. VOCs detected above action levels were predominately chlorinated hydrocarbons or solvents such as: Tetrachloroethene (PCE), Trichloroethylene (TCE), 1,2- Dichloroethane (DCA), Vinyl Chloride, Benzene, Toluene, Ethylbenzene, (total) Xylene (BTEX), and Chloroform. These chemicals were detected in soil throughout the CRS-Site with the highest concentrations co-located in the NW corner, at the zero to four feet (0 - 4') depth. Health risks associated with these chemicals to the future industrial worker are unacceptable under soil ingestion, inhalation and dermal contact ***exposure pathways***. In general, the concentrations of VOCs decreased with soil depth. Chemicals detected at the four feet to eight feet interval include PCE, TCE, Ethylbenzene, and Xylene. Chemicals detected between eight feet and 16 feet were, for the most part, not above the site-specific risk level. The following five SVOCs were detected in soil above health-based risk levels to the future industrial worker (outdoor): Benzo (a) anthracene, Benzo (b) fluroanthene, Benzo (a) pyrene, and Dibenzo (a, h) anthracene, and Indeno (1,2,3-c,d) pyrene. As with the VOCs, the SVOC concentrations also decreased with depth.

Arsenic was the only metal COC that contributed to the site-specific risk for the future industrial worker (outdoor). Polychlorinated biphenyls (PCBs) that contribute to the site-specific risk to the future industrial outdoor worker include Aroclor-1242, Arcolor-1248, Aroclor-1254, and Aroclor-1260. Except for one sample, PCBs in soil above the site-specific risk level for direct contact exposure were detected at depths greater than four feet.

Ground water – Ground water samples were collected and analyzed for VOCs, SVOCs, metals, and PCBs. VOCs detected above the site specific health risk level to the future industrial worker (outdoor) and greater than the ***maximum contaminant levels (MCLs)*** for drinking water include: 1,2-DCA, 1,1-DCA, 1,1-Dichloroethene (DCE), Acetone, Chloroethane, Chloroform, Cis-1,2-DCE, Ethyl-benzene, Methylene Chloride, PCE, Styrene, Toluene, TCE, Vinyl Chloride, and Xylene. Review of historical ground water analytical results (field and laboratory), and from the most impacted ground water monitoring well (MW) - 6, located near the former Rodney Hunt Still Building), suggest that the VOCs are naturally degrading. This conclusion was reached after evaluating the CRS-Site conditions, including concentrations or readings of key analytes compared to established screening criteria for monitored ***natural attenuation (MNA)***. Such parameters include dissolved oxygen, ferrous iron, oxygen reduction potential, and the presence of breakdown products of the chemicals detected in ground water. These data indicate that the conditions at the CRS-Site are favorable for possible MNA of the VOCs detected in MW - 6 and at other areas of the site.

Surface water – Six surface water samples were collected from the River and analyzed for VOCs, SVOCs, metals, and PCBs. VOCs, SVOCs, and PCBs were not detected in any surface water samples collected. Arsenic (total and dissolved) was detected above action level (0.045 ppb) but not above the *water quality standards* (3.0 ppb) in all surface water samples. The upstream/background sample for arsenic was greater than or equal to the downstream (site related) samples.

Sediment Samples – Six sediment samples were collected from the River and analyzed for VOCs, SVOCs, PCBs, and metals. VOCs, and PCBs were not detected in any sediment samples collected. The SVOC, Benzo (a) pyrene, was detected in all sediment samples except from one upstream location. Arsenic is the only metal detected above the ***Preliminary Remediation Goals (PRGs)*** in all sediment samples, including the upstream sample.

PRINCIPAL THREAT

The contaminated surface soils in the NW corner of the CRS-Site are considered to be "principal threat wastes" because the chemicals of concern are found at concentrations that pose a significant risk. Under the reasonable anticipated future land use scenario of an indoor industrial user, the excess carcinogenic risk is 2×10^{-2} and the non-carcinogenic Hazard Index (HI) is 357 from exposure to the soil contaminants via indoor soil vapor. In addition, these soils may become a source for additional ground water contamination.

SCOPE AND ROLE OF RESPONSE ACTION

This action will be the final action for the CRS-Site. The Remedial Action Objectives (RAOs) for this action are to prevent current and future exposure to contaminated media through (1) excavation and off-site disposal of the contaminated soils that constitute the principal threat at the CRS-Site, (2) containment of the remaining soil contamination, and (3) monitored natural attenuation of the contaminated ground water to drinking water standards.

WHAT IS RISK AND HOW IS IT CALCULATED?

A Superfund human health risk assessment estimates the "baseline risk." This is an estimate of the likelihood of health problems occurring if no cleanup action were taken at a site. To estimate the baseline risk at Superfund site, EPA undertakes a four-step process:

Step 1: Analyze Contamination
Step 2: Estimate Exposure
Step 3: Assess Potential Health Dangers
Step 4: Characterize Site Risk

In Step 1, EPA looks at the concentrations of contaminants found at the site as well as past scientific studies on the effects these contaminants have had on people (or animals, when human studies are unavailable). A comparison between site-specific concentrations and concentrations reported in past studies helps EPA to determine which contaminants are most likely to pose the greatest threat to human health.

In Step 2, EPA considers the different ways that people might be exposed to the contaminants identified in Step 1, and the potential frequency and duration of exposure. Using this information, EPA calculates a "reasonable maximum exposure" (RME) scenario, which portrays the highest level of human exposure that could reasonably be expected to occur.

In Step 3, EPA uses the information from Step 2 combined with information on the toxicity of each chemical to assess a potential health risk. EPA considers two types of risk: cancer risk and non-cancer risk. The likelihood of any kind of cancer resulting from a Superfund Site is expressed as an upper bound probability; for example, a "1 in 10,000 chance or 1×10^{-4}." In other words, for every 10,000 people that could be exposed, one extra cancer may occur as a result of exposure to those site contaminants. An extra cancer case means that one more person could get cancer than would normally be expected from all other causes. For non-cancer health effects, EPA calculates a "hazard index." The key concept here is that a "threshold level" (measured usually as a hazard index of less than 1) exists below which non-cancer health effects are not predicted.

In Step 4, EPA determines whether site-specific risks are great enough to cause health problems from the Superfund site. The results of the three previous steps are combined, evaluated, and summarized. EPA adds up the potential risk from the individual exposure pathways (inhalation, ingestion, & dermal contact) to determine the nature of the risk the site poses to potentially exposed people. EPA compares this site-specific calculated number to an acceptable risk range for the individual contaminants. For contaminants where research suggests they cause cancer, EPA's acceptable risk range is 1×10^{-6} (one in a million) to 1×10^{-4} (one in ten thousand). For contaminants that are considered non-cancer causing contaminants, but have adverse health effects on target organs, the Hazard Quotient (HQ) when added up individually must produce a Hazard Index (HI) of less than or equal 1.0 to be acceptable by EPA.

SUMMARY OF SITE RISK

EPA conducted a baseline risk assessment to determine the current and future effects of contaminants on human health and the environment. The CRS-Site is zoned currently for industrial/commercial usage. This is the reasonable anticipated future land use. There is potential for the CRS-Site to be zoned as residential property, therefore, a hypothetical residential scenario was evaluated for informational purposes.

The baseline risk assessment evaluated risk from CRS-Site contamination under the following five exposure scenarios: (1) current occasional commercial site visitor, (2) future commercial/industrial worker, (3) future construction worker, (4) current and future site trespasser, and (5) future resident (adult and child). The site-specific risks were quantified via calculations of daily intake and compared to acceptable reference doses. Potential exposure routes evaluated for the CRS-Site included soil ingestion, soil dermal contact, inhalation of soil vapors (indoor and outdoor air), inhalation of ground water vapors (indoor and outdoor air), sediment dermal contact, and surface water dermal contact. The ground water exposure route is not complete. Municipal water is available, and the impacted ground water is not and is unlikely to be used as a potable drinking water source. However, the Superfund Program ***National Oil and Hazardous Substances Pollution Contingency Plan (NCP)*** requires that EPA restore contaminated ground water to its beneficial use, which at the CRS-Site means restoration to safe drinking water standards. The potential migration of ground water to surface water is not a concern because current sampling results show that chemicals detected in the down gradient monitoring wells and chemicals detected in the surface water samples are below the Ohio EPA ***water quality standards***.

It is the EPA's current judgment that the Preferred Alternative identified in this Proposed Plan, or one of the other active measures considered in the Proposed Plan, is necessary to protect public health and the environment from actual or threatened releases of hazardous substances into the environment.

Human Health Risk Summary Table

Note: EPA's acceptable risk range for carcinogens is $1 \times 10^{-6} - 1 \times 10^{-4}$, and for non-carcinogens a Hazard Index (HI) ≤ 1.0.

Chemicals of concern (COC) evaluated in the site-specific risk assessment were identified by comparing the maximum concentration of a chemical to a risk-based screening concentration to ensure a cumulative cancer risk of 1×10^{-4} or less, and a ***Hazard Index*** of 1.0 or less.

The risk estimates were based on the current reasonable maximum exposure scenarios and were developed by taking into account various conservative assumptions about the frequency and duration of an individual's exposure to the soil, ground water, surface water and sediment.

TABLE 1.0 CRS Human Health Risk Summary Table

Receptor	Total Cancer Risk	Total HI	Media/Exposure Pathway	Chemical of Concern (COC)
Site-visitor (Commercial) Current	2.0×10^{-5}	0.4	Soil Ingestion, inhalation, and dermal contact; inhalation of particulate in surface soils, inhalation of ground water volatile chemicals outdoor air	N/A
Juvenile trespasser Current	2.1×10^{-5}	0.7	Soil Ingestion, inhalation, and dermal contact; inhalation of particulate in surface soils, inhalation of ground water volatile chemicals outdoor air	N/A
Industrial worker (Outdoor) Future	4.1×10^{-4}	8.0	Soil Soil ingestion, inhalation, and dermal contact	1,2-Dichloroethane (DCA), Aroclors: 1242, 1248, 1245, and 1260, Arsenic, Benzene, Chloroform, Vinyl chlorine, Trichloroethane (TCA), trans-1,3-Dichloropropene, Dibromochloromethane, and Tetrachloroethene (PCE)
Industrial or Commercial worker (Indoor)* Future	2.7×10^{-2}	357	Soil & Ground Water Vapors *Inhalation of soil & ground water volatiles These exposure pathways would be complete only if a building is constructed over the impacted area. **Vapor to indoor air may require further investigation if a building is placed on site*	1,1,1-TCE, 1,1,2-TCE. 1,1-DCA, 1,1-dichloroethene, 1,2-Dichloroethane, Benzene, Chloroethane, Chloroform, Cis-1,2-dichloroethane, Dibromochloromethane, Ethylbenzene, Methylene Chloride, Naphthalene, PCE, Toluene, trans-1,2-dichloroethene, trans-1,3-dichloropropene, and Trichloroethylene (TCE)
Construction worker Future	1.3×10^{-5}	8.4	Soil & Ground Water; Direct contact & incidental ingestion of soil	TCA, Aroclor 1242, & Aroclor 1254

Receptor	Total Cancer Risk	Total HI	Media/Exposure Pathway	Chemical of Concern (COC)
Juvenile Trespasser Future	8.7 x 10^{-5}	3.0*	Soil, Ground Water, Surface Water Sediment Ingestion, inhalation & dermal contact	N/A *Although the total hazard index is above the target level of 1.0. The hazard indices for individual target organs are below the target hazard level of 1.0. Therefore, the potential exposure to chemicals in these media should not result in adverse health effects for the receptor.
Resident Hypothetical Indoor	1.4 x 10^{-1}	1275	Soil & Ground water Incidental ingestion, inhalation & dermal contact *Ingestion of shallow ground water (private water well user)*	1,1,1-TCA, 1,1-DCA, 1,1-DCE, 1,2-DCA, Benzene, Methylene Chloride, Toluene, and PCE
Resident Hypothetical Outdoor	1.0 X 10^{-3}	55	Soil Direct contact	1, 2-DCA, Aroclor 1221, Aroclor 1242 Aroclor 1248, Aroclor 1254, Aroclor 1260, Antimony, Arsenic, Benzene, Vinyl Chloride, Xylene, PCE, TCE Benzo(a)anthracene, Benzo(a)pyrene, Benzo(a,h) anthracene, and Indeno(1,2,3-c,d)pyrene
Resident Hypothetical (Indoor gas)	1.4 X 10^{-2}	1203	Soil vapors *Inhalation **Vapor to indoor air may require further investigation if a building is placed on site*	Benzene, Chloroethane, cis-1,2-Dichloroethene, Methylene Chloride, Toluene, TCE, Vinyl Chloride, Xylene, Naphthalene, and Chloroethane
Resident Hypothetical (Indoor gas)	2.4 X 10^{-4}	17	Ground water vapors *inhalation **Vapor to indoor air may require further investigation if a building is placed on-site*	Benzene, Chloroethane, cis-1, 2-Dichloroethene, Methyl Chloride, Toluene, TCE, Vinyl Chloride, Xylene, and naphthalene

Receptor	Total Cancer Risk	Total HI	Media/Exposure Pathway	Chemical of Concern (COC)
Resident Hypothetical	4.9 x 10^{-4}	27	*Ground water Incidental ingestion, inhalation & dermal contact **Ingestion of deep ground water (private water well user)*	Benzene, Vinyl Chloride, Arsenic and Manganese

ECOLOGICAL RISK

Due to the presence of hazardous contaminants in soil, ground water, surface water, and sediments, a screening level ecological risk assessment (SLERA) was conducted. The lowest established ecological benchmarks for each medium of concern (surface water, sediments, and soil) were compared to the maximum detected concentrations of contaminants at the CRS-Site.

The ground water pathway was eliminated as a medium of concern. The depth to shallow ground water is over eight feet, and only a few small potential seeps were identified at the CRS-Site. It was determined that exposure of ecological receptors to contaminated ground water does not exist. The sample results showed that the CRS-Site surface soil is contaminated with various compounds (metals and VOCs). The SVOC, Benzo(a)pyrene, and the metal Arsenic detected in sediments at concentrations that may be harmful to ecological receptors under certain conditions (e.g. prolonged exposure in the habitat). As for Arsenic, the upstream sample concentration exceed water quality standards, therefore, it has not been determined that Arsenic is a site-related contaminant. The risk calculations are based on the maximum detected concentration, which is reflective of the maximum exposure at a single point. The remedial alternatives considered were evaluated as to their effectiveness of remediating the site to conservative ecological screening values since those are the values that were used in the SLERA.

It is EPA's current judgment that the Preferred Alternative identified in this Proposed Plan, or one of the other active measures considered in the Proposed Plan, is necessary to protect public health and the environment from actual or threatened releases of hazardous substances into the environment.

REMEDIAL ACTION OBJECTIVES (RAOs)

The Remedial Action Objectives/CRS-Site Specific Remediation Goals

- **Soil and Sediments**: to prevent exposure to all COCs that exceed EPA's acceptable range of 1 x 10^{-6} to 1 x 10^{-4} for carcinogens, and a Hazard Index (HI) >1.0 for non-carcinogens to the juvenile trespasser, the industrial or commercial worker, and the ecological receptors;

- **Soil vapor exposure**: to prevent exposure to all COCs in indoor air where concentrations exceed EPA's acceptable risk range of 1x 10^{-6} to 1 x 10^{-4} for carcinogens, and a HI > 1.0, for non-carcinogens for the industrial or commercial worker;

- **Ground Water**:
    - to minimize or eliminate contaminant migration to ground water and surface water bodies; and
    - to restore ground water to drinking water standards established under the Safe Drinking Water Act within a reasonable time frame

SUMMARY OF REMEDIAL ALTERNATIVES

The Remedial alternatives for the CRS-Site are presented below. These alternatives have the following common elements (except for the no action alternative)

Common Elements to the Alternatives

- Air monitoring during construction, and application of dust control measures;
- Demolition of the Warehouse/Office building, and the "shell" of the Rodney Hunt Still building;
- Closure of the two on-site sumps;
- Appropriately re-grade and landscape the 2.5 acre CRS-Site including the slope to the East Branch of the Black River; and apply erosion protection to the slope;
- Repair the sewer line;
- Install a perimeter fence;
- Implement Institutional Controls in the form of restrictive covenants or other appropriate controls on the property to prohibit the following:
    - Compromise to the CRS-Site cover system;
    - Ground water use for potable and non-potable purposes, until restoration to Safe Drinking Water Standards is obtained for all contaminants of concern;
    - Zoning to industrial/commercial only; and
    - Building structures on the CRS-Site without EPA notification and approval.
- All alternatives require continued ground water monitoring to demonstrate that natural attenuation (NA) of ground water is occurring. The CRS-Site-specific monitoring and sampling plan will be developed consistent with EPA's Monitored Natural Attenuation Guidance (OSWER Directive 9200.4 - 179). As a contingency, active ground water treatment or other innovative measures may be necessary if MNA is not occurring.

  Because hazardous substances will remain on-site above levels that allow for unlimited use and unrestricted exposure at CRS, once the remedy is in place, EPA is required to conduct a review of the protectiveness of the remedy every 5 years. During the Five Year Review, ground water monitoring data will be evaluated to determine if MNA is not working, EPA, in consultation with Ohio EPA, will evaluate the appropriate options for ground water remediation.

- Achieve Remedial Action Objectives; and

- Operation and Maintenance: maintain the cover system and the CRS-Site fence (except for the total excavation alternative); MNA while the COCs achieve their respective MCL concentrations.

Alternative 1: No Action

Estimated Capital Cost: $0 *Estimated Annual O&M Cost: $0*
Estimated Present-Worth: $0 *Estimated Construction Time Frame: None*

Regulations governing the Superfund Program require that a "no action" alternative be included to establish a baseline for comparison. Under this alternative, EPA would take no action to prevent exposure to contaminated soil and ground water.

Alternative 2: Soil Cover with an Infiltration Barrier Cap (0.5-acres in NW corner)

Estimated Capital Cost $777,000 *Estimated Construction Time Frame: 3 months*
Estimated Total Present-Worth Cost: $1,340,000 *Estimated Annual O&M Cost: $50,000*
Estimated Time to Achieve Remedial Action Objectives >30 years

At a minimum, a two feet soil cover over the 2.0-acre portion of the CRS-Site underlain with a marker, such as orange polyethylene netting to delineate that this area has contaminated soil. A geo-synthetic liner/infiltration barrier lain over the "hotspot" soil area located in the NW corner of the CRS-Site (0.5-acre) to prevent further contaminant migration to ground water. Then add two – feet of clean soil on top of the infiltration barrier.

Alternative 3: Stone Cover with an Infiltration Barrier Cap (0.5-acres in NW corner)

Estimated Capital Cost: $761,000 *Estimated Annual O&M Cost: $43,000*
Estimated Total Present-Worth Cost: $1,245,000 *Estimated Construction Timeframe: 4 months*
Estimated Time to Achieve Remedial Action Objectives >30 years

At a minimum, the stone cover would contain approximately 1 foot of 304 stone (8,620 square yards) over the 2.0-acre portion of the CRS-Site, underlain with a marker, such as orange polyethylene netting to make it clear to delineate that this area has contaminated soil. A geo-synthetic liner/infiltration barrier lain over the "hotspot" soil area located in the NW corner of the CRS-Site (0.5-acre) to prevent further contaminant migration to ground water. Then add two –feet of clean soil on top of the infiltration barrier.

Alternative 4: Asphalt Cover with an Infiltration Barrier Cap (0.5-acres in NW corner)

Estimated Capital Cost: $791,000 *Estimated Annual O&M Cost: $50,000*
Estimated Total Present-Worth Cost: $1,354,000 *Estimated Construction Timeframe: 4 months*
Estimated Time to Achieve Remedial Action Objectives >30 years

The asphalt cover: a six-inch thick base of a type 304-course aggregate stone, and four inches of asphalt over the 2.0-acre portion of the CRS-Site, underlain with a marker such as a textile fabric to delineate that this area has contaminated soil. A geo-synthetic liner/infiltration barrier lain over the "hotspot" soil area located in the NW corner of the CRS-Site (0.5-acre) to prevent further contaminant migration to ground water. Then add two –feet of clean soil on top of the infiltration barrier.

Alternative 5: Concrete Cover with an Infiltration Barrier Cap (0.5-acres in NW corner)

Estimated Capital Cost: $837,000 *Estimated Annual O&M Cost: $50,000*
Estimated Total Present-Worth Cost: $1,400,000 *Estimated Construction Timeframe: 4 months*
Estimated Time to Achieve Remedial Action Objectives >30 years

The concrete cover: a six-inch thick base of a type 304-course aggregate stone, and four inches of concrete over the 2.0 acre portion of the CRS-Site; underlain with a marker, such as orange polyethylene netting to delineate that this area has contaminated soil. A geo-synthetic liner/infiltration barrier lain over the "hotspot" soil area located in the NW corner of the CRS-Site (0.5-acre) to prevent further contaminant migration to ground water. Then add two –feet of clean soil on top of the infiltration barrier.

Alternative 6: Excavation (0.5-acres/NW corner) Off-site Disposal, Backfill with Clean Fill Material

Estimated Capital Cost: $667,150 *Estimated Annual O&M Cost: $50,000*
Estimated Total Present-Worth Cost: $1,740,000 *Estimated Construction Timeframe: 6 months*
Estimated Time to Achieve Remedial Action Objectives < 30 years

At a minimum, a two-foot soil cover over the 2.0-acre portion of the CRS-Site underlain with a marker, such as orange polyethylene netting to delineate that this area has contaminated soil. Excavate "hotspot" area (approximately 14,440 yd^3), the 0.5 acres located in the NW corner of the CRS-Site to a depth of four feet. Based on the RI sampling data in this area, four feet is where 50% of the contaminant mass of that 0.5 -acres located, then backfill this area with clean soil. The lateral extent of the excavation will be determined in the pre-design phase of the project; however, it is likely to coincide with the same surface area of the infiltration barrier cap shown in Figure 1.0

Dispose excavated soils off-site at an appropriate disposal facility. Collect surficial (0-6 inches) soil samples to document the contaminants levels left in place. No additional soil removal is required.

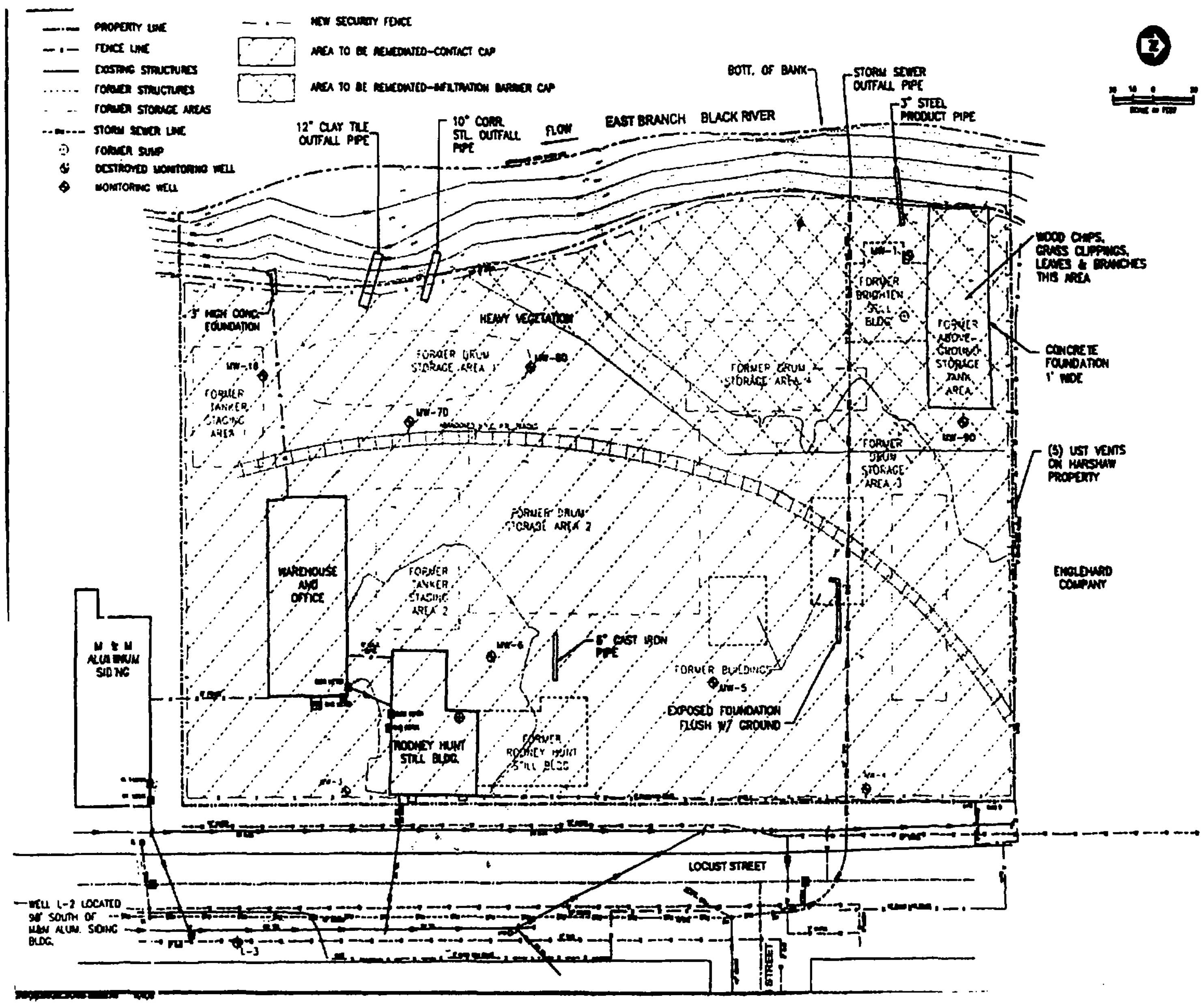
Alternative 7: Total CRS-Site (2.5-acres) Excavation and Disposal; Backfill with Clean Fill Material

Estimated Capital Cost: $2,646,000 *Estimated Annual O&M Cost: $0*
Estimated Total Present-Worth Cost: $7,910,000 *Estimated Construction Timeframe: 6 months*
Estimated Time to Achieve Remedial Action Objectives 30 years

Approximately 54,000 tons of soil (entire 2.5 acres) is excavated and materials disposed of off-site at an appropriate disposal facility, and backfilled with clean fill material.

Figure 1.0

Alternatives 2 through-6:
Various Cover Systems (Over 2.0-Acres) and a Geo-Synthetic Liner/Infiltration Barrier
Or
Excavation of
NW Corner (0.5-Acres) of CRS-Site



EVALUATION OF ALTERNATIVES

A detailed analysis of all alternatives consists of the presentation and evaluation of relevant information needed to select a remedy. During the detailed analysis, each alternative is compared to the nine evaluation criteria described below.

This approach to analyzing alternatives is to adequately compare the alternatives, select an appropriate remedy, and demonstrate satisfaction of CERCLA remedy selection requirements in the Record of Decision (ROD).

EPA developed Nine Evaluation criteria to address policy, technical requirements, and institutional considerations for appropriate remedial actions at Superfund Sites. Table 2.0 below describes these criteria. Table 3.0 compares the alternatives to these criteria.

TABLE 2.0
Nine Criteria for Remedial Alternatives Evaluation

1. **Overall Protection of Human Health and the Environment** determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls or treatment.
2. **Compliance with Applicable or Relevant and Appropriate Requirements** evaluates whether the alternative meets Federal and State environmental statutes, regulations, and other requirements that pertain to the site, or whether a waiver is justified.
3. **Long-Term Effectiveness and Permanence** considers the ability of an alternative to maintain protection of human health and the environment over time.
4. **Reduction of Toxicity, Mobility, or Volume through Treatment** evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.
5. **Short-Term Effectiveness** considers the length of time needed to implement an alternative and the risks the alternative poses to workers, residents, and the environment during implementation.
6. **Implementability** considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.
7. **Cost** includes estimated capital and annual operations and maintenance cost, as well as present worth cost. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent. A comparison of the costs of each alternative includes capital cost, and operation and maintenance cost.
8. **State/Support Agency Acceptance** considers whether the State agrees with the EPA analyses and recommendations, as described in the Remedial Investigation/Feasibility Report and Proposed Plan.
9. **Community Acceptance** considers whether the local community agrees with EPA's analyses and preferred alternative. Comments received on the Proposed Plan are an important indicator of community acceptance, and are addressed in the ROD.

Community acceptance of the preferred alternative will be evaluated after the public comment ends and will be described in the ROD for this CRS-Site. The preferred alternative can change in response to public comment or new information.

EPA'S PREFERRED ALTERNATIVE

EPA RECOMMENDS ALTERNATIVE 6:

<u>SOIL COVER OVER 2.0-ACRES AND EXCAVATION (0.5 ACRES/NW CORNER) OFF-SITE DISPOSAL, BACKFILL WITH CLEAN FILL MATERIAL</u>

1. **Excavate the top four feet of highly contaminated soil located in the NW corner (0.5-acres); to address the principal threat source material, which may migrate to ground water, which will eliminate the direct contact risk associated with the contaminated soil.**
2. **Dispose excavated soils off-site at an appropriate disposal facility;**
3. **Surficial sampling verification (up to [illegible] inches), to document the level of and type contaminants left in place. No additional soil removal is required;**
4. **Backfill excavated area with clean fill material, and cover with at least two-feet of clean soil;**
5. **Application of a marker prior to backfilling, such as orange polyethylene netting, to delineate contaminated soils are underneath;**
6. **Cover the remainder of the CRS-Site ([illegible] acres) with two-feet of clean soil, compact and appropriately grade for erosion control;**
7. **Monitored Natural Attenuation of ground water to assure ground water restoration to drinking water standards are achieved for all COCs;**
8. **Institutional Controls to ensure the CRS-Site remains protective of public health and the environment;**
9. **Perimeter Fencing; and**
10. **30-year O&M to assure all RAOs continue to be maintained.**

Based on information currently available, EPA believes the Preferred Alternative meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria. EPA expects the Preferred Alternative to satisfy the following statutory requirements of CERCLA Section 121(b):

1) Be protective of human health and the environment;

2) Comply with ARARs (or justify a waiver);

3) Be cost-effective;

4) Utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and

5) Satisfy the preference for treatment as a principal element (or justify not meeting the preference).

OHIO EPA CONCURENCE

Ohio EPA concurs with the proposed remediation outlined in this proposed plan.

Alternative 1: No Further Action

This alternative is not protective of human health or the environment; and risk posed by the CRS-Site remains unabated.

Alternatives 2 through 5: Different covers over 2.0-acres with an Infiltration barrier cap over the NW corner (0.5-acres)

These alternatives are protective of human health and the environment and meet ARARs. However, they do not adequately provide the level of source control to support ground water restoration in a reasonable period, or adequately provide long-term effectiveness and permanence.

Alternative 7: Total Site Excavation

Alternative 7 is protective of human health and the environment, meets ARARs, and adequately provides source control to support ground water restoration, however it is not cost effective.

TABLE 3.0

REMEDIATION ALTERNATIVES

Evaluation Criteria	Alternative						
	1	2	3	4	5	6	7
1. Overall Protection of Human Health & the Environment	🖃	📬	📬	📬	📬	📬	📬
2. Compliance with ARARs	🖃	📬	📬	📬	📬	📬	📬
3. Long-Term Effectiveness and Permanence	🖃	■	■	■	■	📬	📬
4. Reduction of Toxicity, Mobility, of Volume Through Treatment	🖃	🖃	🖃	🖃	🖃	📬	📬
5. Short-Term Effectiveness	🖃	■#	■#	■#	■#	■#	■#
6. Implementability	🖃	📬	📬	📬	📬	📬	📬
7. *Cost – Capital* Construction Cost (including 30-yr. operation & maintenance period of a minimum of 30 years; approx. $50,000 annually)	$0	$1.34 Million	$1.25 Million	$1.35 Million	$1.40 Million	$1.74 Million	$7.91 Million/ $24Milliom*
8. State Acceptance	🖃	📬	📬	📬	📬	📬	📬
9. Community Acceptance	**TBD**	**TBD**	**TBD**	**TBD**	**TBD**	**TBD**	**TBD**

🖃Does not meet criteria

■Partially meets criteria

📬Fully meets criteria

TBD to be determined after comment period

#Dust produced during demolition, excavation and re-grading of the CRS-Site is temporary with short-term exposure.

*Smaller amount is the cost for disposal at a solid waste facility; larger amount is the cost for disposal at a hazardous waste facility.

A Soil Vapor Extraction (SVE) treatment system was also evaluated to treat the "hotspot" area located in the NW corner. It was determined that selection of the SVE remedy had a high potential for being inefficient and problematic.

COMMUNITY PARTICIPATION

EPA will accept written comments on this Proposed Plan during the public comment period from Monday, July 16, 2007 through Tuesday, August 14, 2007. Comments provided by residents and other interested individuals are valuable in helping EPA decide the remedy for the CRS-Site. EPA encourages you to share your views about the proposed remediation plan. There are two ways to express your opinion during the public comment period:

- You may send your comments to Gwendolyn S. Massenburg, (SR-6J) Remedial Project Manager, US EPA, 77 W. Jackson Blvd., Chicago, Illinois 800.621.8431 ext. 60983, or to Susan Pastor (19P-J), Community Involvement Coordinator 800.621.8431 ext. 31325. All comments submitted must be postmarked by Tuesday, August 14, 2007.

- A public meeting will be held on Thursday, July 26, 2007, 6:00 p.m. to 8:00 p.m. at the Elyria City Council Chambers, 2nd floor, 131 Court Street. You may submit oral or written comments during that public meeting. A court reporter will be present to record oral comments.

EPA will respond to all comments in a document call the Responsiveness Summary. The Responsiveness Summary will be attached to the ROD and will be made available to the public in the information repository at the library.

GLOSSARY OF TERMS

Action Level - A level of contaminant concentration when exceeded requires an action. For soil, the action level is based on the PRGs, for ground water, the action level is based on MCLs, and for surface water, and sediments, the action level is based on water quality standards, or PRGs.

Administrative Record (AR) – The body of a documents that "forms the basis" for the selection of a particular response at a site. For example, the AR for remedy selection includes all documents that were "considered or relied upon" to select the response action. An AR must be available at or near every site to permit interested individuals to review the documents and to allow meaningful public participation in the remedy selection process.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) – A federal statute passed in 1980, revised in 1986 by the Superfund Amendments and Reauthorization Act (SARA), more commonly know as Superfund, which gives the federal government authority to investigate and remediate abandoned or uncontrolled hazardous sites that pose threats to human health and the environment.

De Minimis Contributors – PRP who are deemed by the settlement agreement to be responsible for only a minor portion of the response costs at a particular facility. A determination of a PRP's responsibility is made based on the volume, toxicity, or other hazardous effects in comparison with other wastes at the facility.

Ground water –Water beneath the ground surface contained in interconnected spaces in soil or openings in rocks.

Exposure Route - The route a receptor makes contact with chemicals (e.g., by ingestion, inhalation, and/or dermal contact).

Exposure Pathway - The course a chemical takes from the source to the exposed individual. An exposure pathway analysis links the sources, locations, and types of environmental releases with population locations and human exposure.

Information Repository - The place where the Administrative Record with current information, technical reports, and reference materials regarding a Superfund Site are stored. EPA or the state establishes the repository in the community as soon as a site is discovered. It provides the public with easily accessible information. Repositories for all sites are established where cleanup and/or remediation activities are expected to last for more than 45 days. Typically, community repository locations are public libraries and/or municipal offices.

Maximum Contaminant Levels – National standards derived to protect a public water supply, specified in the National Primary Drinking Water Standards, established by the Safe Drinking Water Act.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP) – The NCP is the major framework regulation for the federal hazardous substances response program. The NCP includes procedures and standards for how EPA, other federal agencies, states and private parties respond under CERCLA to releases or threats of releases of hazardous substances and under Clean Water Act Section 311, as amended by the Oil Pollution Act of 1990, to discharges of oil.

Natural Attenuation – A process that occurs naturally when chemicals degrade without treatment. Samples are collected to monitor the chemical concentrations during the process.

Preliminary Remediation Goal (PRGs) – Are tools for evaluating and remediating contaminated sites. They are risk-based concentrations that are intended to assist risk assessors and others in initial screening-level evaluations of environmental measurements. The PRGs contained in the Region 9 PRG Table are generic; they are calculated without site-specific information. However, they are re-calculated in the Risk Assessment using site-specific data calculated to protect human health from hazardous substances found in soil, ambient air, and tap water.

Remedial Investigation (RI) – The purpose of the RI is to characterize the nature and extent of the risks associated with the contamination at the site. The RI involves site characterization, which includes (1) collecting data and information necessary to characterize the nature and extent of contamination at the site and (2) determining whether the contamination presents a significant risk to human health or the environment. The RI also involves a baseline risk assessment and treablility studies, as appropriate.

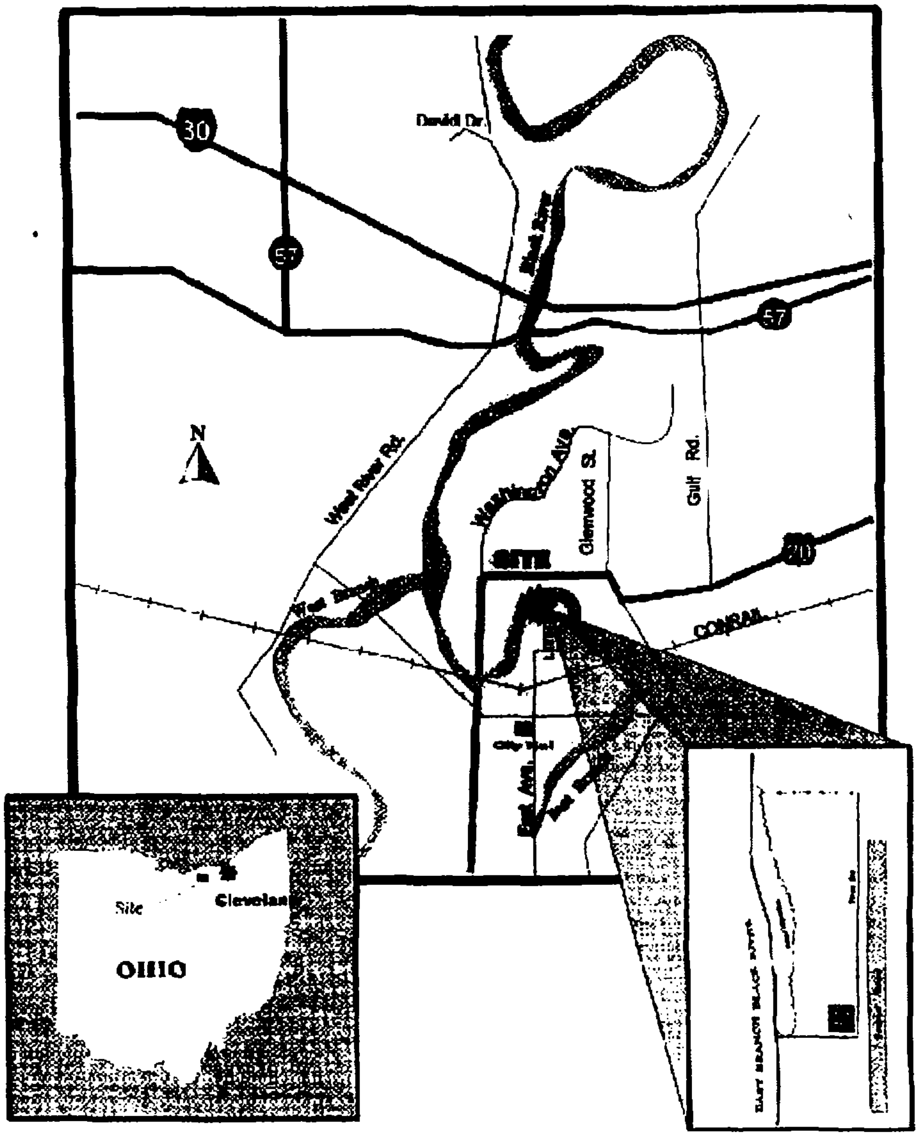
Proposed Plan – A document that summarizes the Remedial Investigation/Feasibility Study conducted at a Superfund Site; recommends a remediation alternative, and explains the basis for the recommendation.

Potentially Responsible Party (PRPs) – Under CERCLA, four classes of parties, termed "potential responsible parties," may be liable for contamination at a Superfund Site:

- The current owner or operator of the site (CERCLA Section 107(a) (1));
- The owner or operator of a site at the time that disposal of a hazardous substance, pollutant or contaminant occurred (CERCLA Section 107(a) (2);
- A person who arranged for the disposal of a hazardous substance, pollutant or contaminant at a site (CERCLA Section 107(a) (3)); and
- A person who transported a hazardous substance, pollutant or contaminant to a site; that transporter must have also selected that site for the disposal of the hazardous substances, pollutants or contaminants (CERCLA Section 107(a) (4)), 42 U.S.C. § 9607 (a), or other federal common law.

Record of Decision (ROD) – The official Agency document that explains which remedial alternatives have been considered, the selected remedy, technical background relative to the decision, and how the decision complies with law.

Water quality standards - State generated standards used to protect sediment and surface water found in lakes, rivers and streams.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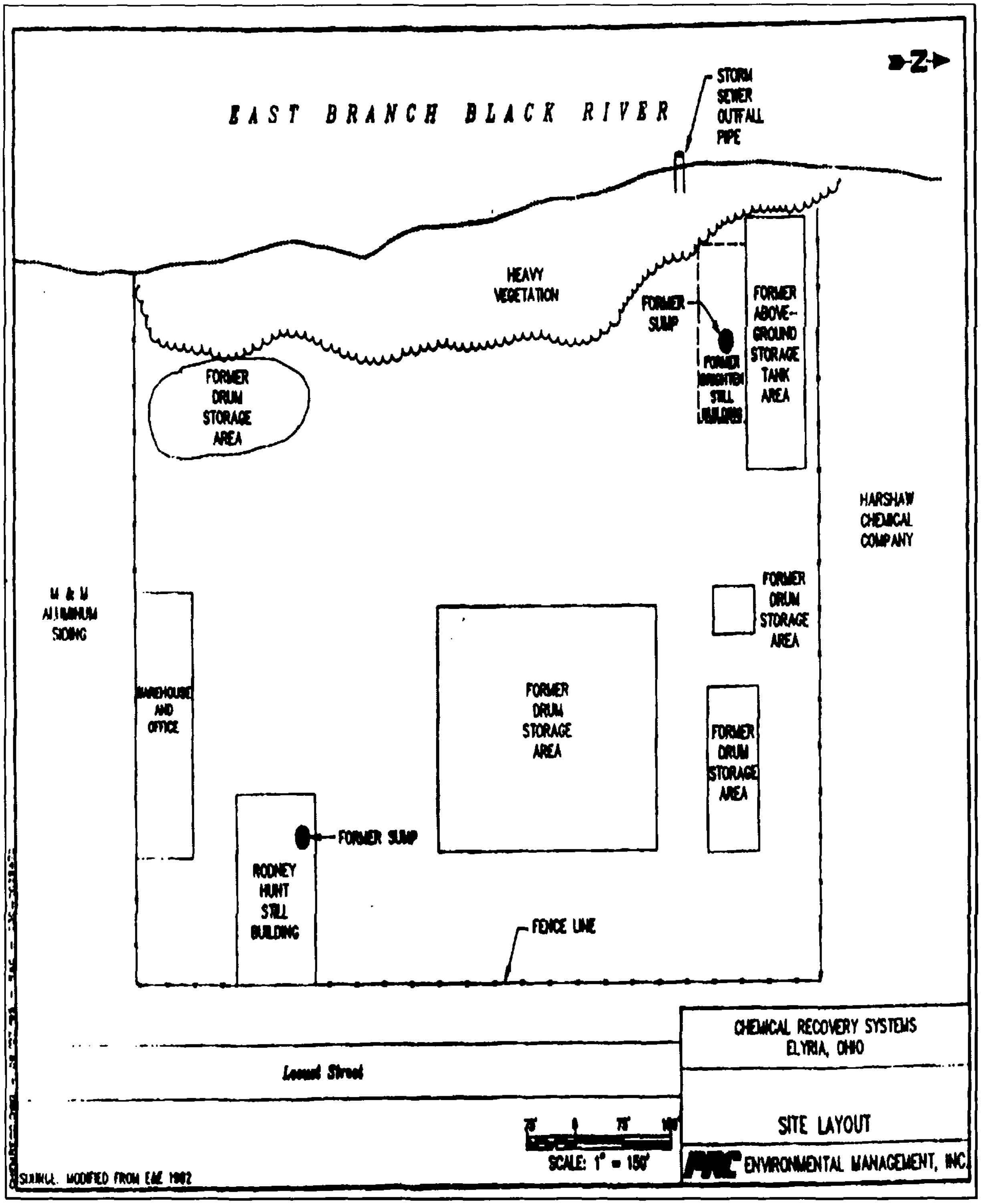
57
N
West River Rd.
Washington Ave.
Glenwood St.
Gulf Rd.
20
SITE
CONRAIL
OHIO
Site
Cleveland

DIAGRAM

OF

CRS - SITE ACTIVITES



Comment Sheet

EPA is interested in your comments on the proposed remedial alternatives. The Agency will consider public comments before selecting a final remedy for the Chemical Recovery Systems, Inc. Site. You may use the space below to write your comments, then fold and mail this form or you may submit your comments at the public meeting. All comments submitted must be e-mailed or postmarked by Tuesday, August 14, 2007. Comments may also be e-mail to Gwendolyn Massenburg at massenburg.gwendolyn@epa.gov, or to Susan Pastor at pastor.susan@epa.gov.

Optional Information

Name ____________________

Affiliation ____________________

Address ____________________

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Place
First
Class
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